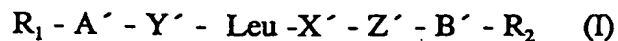


We Claim:

1. A compound having the formula



in which

5 X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid  $\beta$  peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

10 A' means a direct bond or an  $\alpha$ -amino acid bonded at the carboxyl terminal of the  $\alpha$ -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the  $\alpha$ -carboxy group;

B' means a direct bond or an  $\alpha$ -amino acid bonded at the  $\alpha$ -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the  $\alpha$ -nitrogen of the N-terminal  $\alpha$ -amino acid;  $R_1$  is H or  $-\text{CO}-R_3$  bonded at the  $\alpha$ -amino group of A';  $R_2$  is H,  $-\text{OR}_4$  or  $\text{NR}_5\text{R}_6$ , all bound to the  $\alpha$ -carboxyl group of the  $\alpha$ -carboxyterminal of B';

$R_3$  is a straight or branched carbon chain of 1-4 carbon atoms;

$R_4$  is a straight or branched carbon chain of 1-4 carbon atoms;

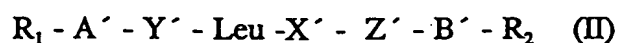
$R_5$  and  $R_6$  independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are  $-(\text{CH}_2)_n-$ , where n is 4-5;

$R_1$  and  $R_2$  together can form a hydrocarbon ring or heterocyclic ring; and

all the  $\alpha$ -amino acids can be either D- or L-isomers; with the proviso that (I) is not Lys-Leu-Val-Phe-Phe, which exhibits an ability to inhibit polymerization of amyloid  $\beta$  peptide.

2. A compound according to Claim 1, wherein all the amino acids are D-isomers.
3. A compound according to Claim 1, wherein Y' is Lys.
4. A compound according to Claim 2, wherein Y' is Lys.
5. A compound according to Claim 3, wherein Y' is Lys and Z' is Phe.
6. A compound according to Claim 1, wherein Y' is Phe.
7. A compound according to Claim 2, wherein Y' is Phe.
8. A compound according to Claim 1, wherein X' is Val-Val.
9. A compound according to Claim 1, wherein R<sub>1</sub> is acetyl.
10. A compound according to Claim 1, wherein R<sub>1</sub> is H and/or R<sub>2</sub> is H.

## 11. Use of a compound of formula



in which

$X'$  means any group or amino acid imparting to the compound of formula (II) the ability to bind to the KLVFF-sequence in the amyloid  $\beta$  peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

$Y'$  means any amino acid;

$Z'$  means any non-acidic amino acid;

$A'$  means a direct bond or an  $\alpha$ -amino acid bonded at the carboxyl terminal of the  $\alpha$ -amino acid bonded at the carboxyl terminal of the  $\alpha$ -carboxygroup or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the  $\alpha$ -carboxy group;

$B'$  means a direct bond or an  $\alpha$ -amino acid bonded at the  $\alpha$ -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the  $\alpha$ -nitrogen of the N-terminal  $\alpha$ -amino acid;

$R_1$  is H or  $-\text{CO}-R_3$  bonded at the  $\alpha$ -amino group of  $A'$ ;

$R_2$  is H,  $-\text{OR}_4$  or  $\text{NR}_3R_6$ , all bound to the  $\alpha$ -carboxyl group of the  $\alpha$ -carboxyterminal of  $B'$ ;

$R_3$  is a straight or branched carbon chain of 1-4 carbon atoms;

$R_4$  is a straight or branched carbon chain of 1-4 carbon atoms;

$R_5$  and  $R_6$  independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are  $-(\text{CH}_2)_n-$ , where n is 4-5;

$R_1$  and  $R_2$  together can form a hydrocarbon ring or heterocyclic ring;

all the  $\alpha$ -amino acids can be either D- or L-isomers;

for inhibition of polymerization of amyloid  $\beta$  peptide-ligands for inhibition of polymerization of amyloid  $\beta$  peptide, as a tool for the identification of other organic compounds with similar functional properties or as a ligand in PET (positron emission tomography).

12. Use according to Claim 11, wherein all the amino acids of the compound are D-isomers.
13. Use according to Claim 9, wherein  $Y'$  is Lys.
14. Use according to Claim 13, wherein  $Y'$  is Lys and  $Z'$  is Phe.
15. Use according to Claim 11, wherein  $Y'$  is Phe.
16. Use according to Claim 11, wherein  $X'$  is Val-Val.
17. Use according to Claim 11, wherein  $R_1$  is acetyl.
18. Use according to Claim 11, wherein  $R_1$  is H and/or  $R_2$  is H.
19. A compound according to Claim 1 for use as a medicament.

20. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment or prevention of amyloidosis.

21. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment or prevention of Alzheimer disease associated with amyloidosis.

22. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment or prevention of demens in patients with Down's syndrome.

23. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment or prevention of Hereditary cerebral hemorrhage with amyloidosis (Dutch type).

24. Use of a compound according to Claim 1 for the manufacture of a medicament for the prevention of fibril formation of human amyloid protein.

25. A composition comprising a compound according to Claim 1 and optionally a ligand capable of binding or interacting with the compound according to formula I and a carrier.

26. A composition according to Claim 25, which is adapted for injection or oral administration.